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मानक

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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

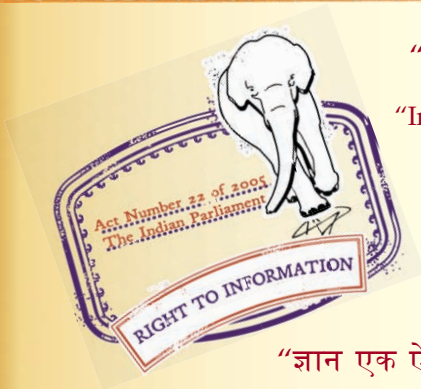
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 11458 (1985): Parallel Clamps [PGD 6: Earth, Metal And Wood Working Hand Tools]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

SPECIFICATION FOR
PARALLEL CLAMPS

1. Scope — Covers the dimensions and other requirements of parallel clamps.

2. Types

Type A — Machinists' parallel clamp.

Type B — Toolmakers' parallel clamp.

3. Dimensions — Dimensions for machinists parallel clamps (*Type A*) shall be as given in Table 1 and dimensions for toolmakers' parallel clamps (*Type B*) shall be as given in Table 2.

4. Material — The components of parallel clamps shall be manufactured from suitable steels meeting the requirements laid down in 5 and 8.

Suitable Example:

<i>Component</i>	<i>Material</i>
Jaws	Plain carbon steel, designation 45C8 conforming to IS : 1570 (Part 2)-1979 'Carbon steels (unalloyed steels) (first revision)'
Screws	Steel conforming designation Fe410 of IS : 1570 (Part 1)-1978 'Steel specified by tensile and/or yield properties (first revision)'
Screw retaining spring	Steel conforming to IS : 2507-1975 'Cold rolled steel strip for springs'

5. Hardness

Jaws — 150 HV Min

Screws — 300-400 HV

6. Designation — Parallel clamps shall be designed by its nominal size, type and number of this standard.

Example:

Parallel clamp nominal size 25 mm, Type B shall be designated as:

Toolmakers' Parallel Clamp 25 B IS : 11458.

7. Workmanship and Finish

7.1 The workfaces of the jaws shall be ground or machined into rectangular cross-section and shall be substantially at right angles to the axis of threaded and unthreaded holes with a permissible tolerance of $\pm 2^\circ$. The workfaces of jaws may also be chamfered.

7.2 For Type A clamps, the outer end of each screw shall be of square cross-section to adopt the suitable spanner and the inner end of heel screw shall have a radius matching the one opposite the work end of the unthreaded jaw.

For Type B clamps, each screw head shall have knurled finish. Each screw head shall be provided with a suitable size hole for insertion of a round pin for tightening purposes. The screw head on the work end shall have a groove provided for the screw retaining spring. The heel screw shall have a portion of the threads removed at the under end to form a pilot which shall be a free fit in the hole of the loose jaw.

7.3 All parts of parallel clamps shall be free from defects, like cracks, burrs, unfillings, pits, scale, seams, flash, etc.

Adopted 7 October 1985

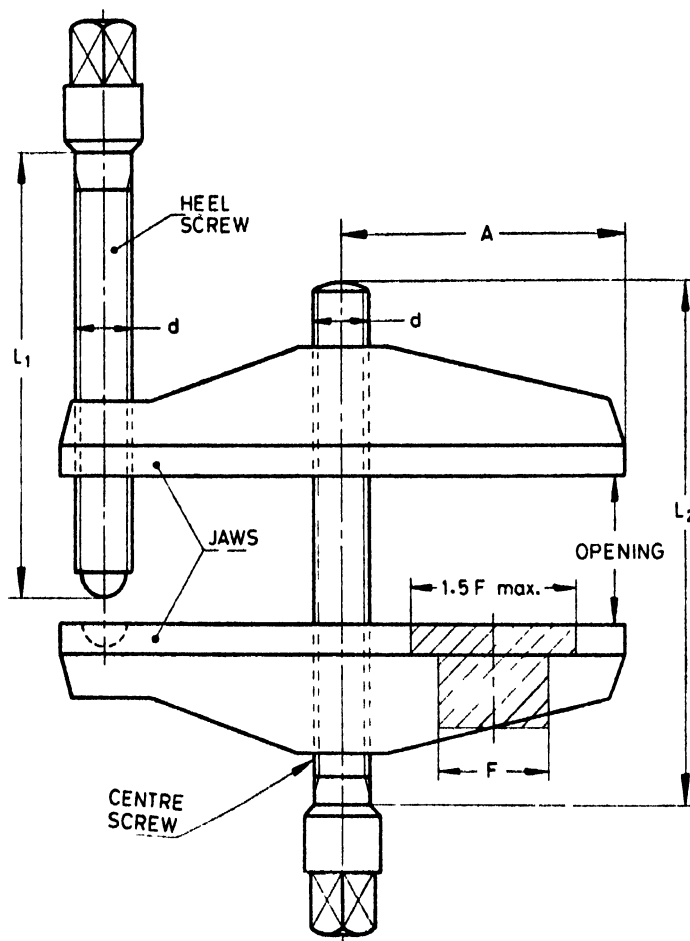
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TABLE 1 DIMENSIONS, MASS AND TEST LOAD FOR MACHINISTS' PARALLEL CLAMPS, TYPE A

(Clauses 3 and 8.1)

All dimensions in millimetres.



Nominal Size	Capacity		Diameter of Screws d	Length of Screws Under the Head		F $\pm 10\%$	Mass of Complete Clamp <i>Max</i> g	Test Load <i>Min</i> N
	Opening Between Jaws <i>Max</i>	Distance from End of Jaw to Centre Screw $A \pm 5$		Heel Screw L_1 $\pm 10\%$	Centre Screw L_2 $\pm 10\%$			
32	32	40	M8* or Tr8 $\times 1.5$ †	60	70	15.5	450	6 200
63	63	50	M10* or Tr10 $\times 2$ †	90	100	18.5	675	8 900
82	82	60	M12* or Tr12 $\times 3$ †	130	135	20.0	1 000	11 600
110	110	75	M12* or Tr12 $\times 3$ †	150	170	20.0	1 500	14 300

Note 1 — The dimensions of width across flats of square end of the screw shall be such that it can adopt the commonly used spanners.

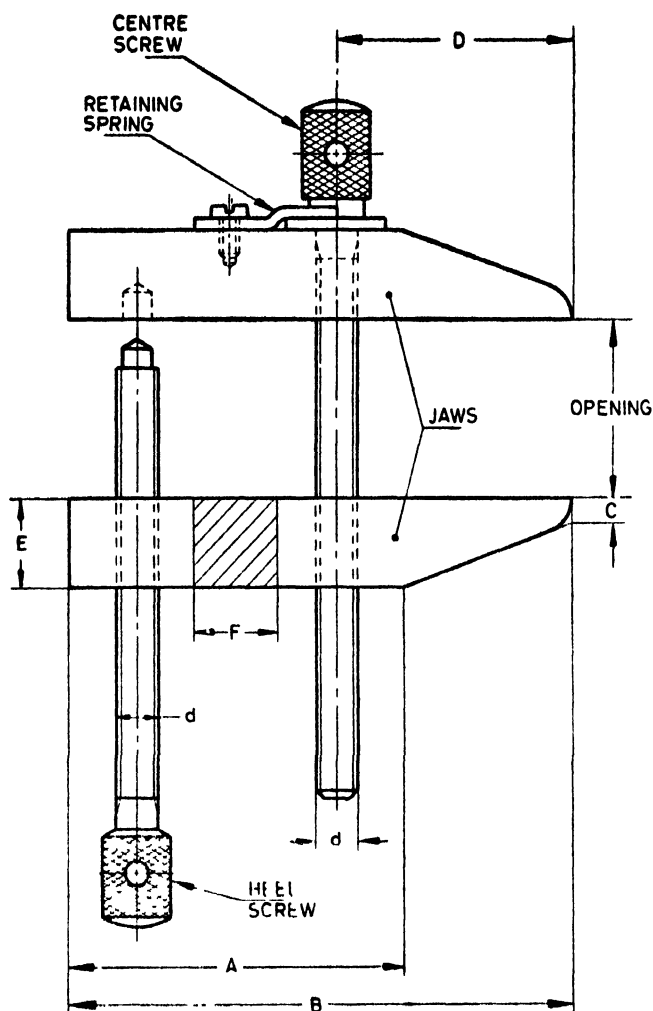
Note 2 — The nominal size of the clamp is the maximum opening between the jaws.

*Conforming to IS : 4218 (Part 3)-1976 'ISO metric screw threads: Part 3 Basic dimensions for design profiles (first revision)'.
†Conforming to IS : 7008 (Part 3)-1973 'ISO metric trapezoidal screw threads: Part 3 Basic dimensions for design profiles'.

TABLE 2 DIMENSIONS, MASS AND TEST LOAD FOR TOOL-MAKERS' PARALLEL CLAMPS, TYPE B

(Clauses 3 and 8.1)

All dimensions in millimetres.



Nominal Size	Capacity		Diameter of Screws d	Dimensions of Jaws					Mass of Complete Clamp Max g	Test Load Min N
	Opening Between Jaws Max	Distance from End of Jaw to Centre D Min		A $\pm 10\%$	B $\pm 10\%$	C $\pm 10\%$	E $\pm 10\%$	F $\pm 10\%$		
19	19	18	M3*	27	42	2.5	7.8	6.5	100	1 600
32	32	22	M4*	34	50	2.75	10.5	8.7	200	2 200
45	45	30	M5*	40	63	3.2	12	10.7	250	3 400
50	50	35	M6*	50	75	3.6	12.5	12.5	350	4 500
63	63	50	M8*	60	100	4	18	18.5	570	6 300
90	90	63	M10*	75	125	5.5	20	18.5	900	8 000

Note — The nominal size of the clamp is the maximum opening between the jaws.

*Conforming to IS : 4218 (Part 3)-1976 'Part 3 Basic dimensions for design profiles.'

IS : 11458 - 1985

8. Test

8.1 Tension Load Test — The load test shall be conducted on a tensile testing machine or similar device of known accuracy. The parallel clamps shall be able to withstand the minimum load specified in Table 1 and Table 2. The test shall be conducted with the parallel clamps in the full opening (maximum opening). The load shall be applied in such a manner, as to cause the clamp to open. This shall be maintained for a minimum period of five minutes. The parallel clamps shall not show any permanent set, crack or deformation.

9. Preservation and Packing — Clamps shall be coated with suitable rust preventive material.

9.1 Each clamp shall be packed separately.

10. Sampling — Unless otherwise agreed to between the supplier and the purchaser, the procedure given in IS : 2500 (Part 1)-1973 'Sampling inspection tables: Part 1 Inspection by attributes and by count of defects (*first revision*)' shall be followed for sampling inspection. For various characteristics the sampling plan as given in 10.1 and 10.2 shall be followed.

10.1 In case of dimensions and workmanship and finish the sampling plan with Inspection level III and Acceptable Quality Level (AQL) 2.5 percent given in Tables 1 and 2 of IS : 2500 (Part 1)-1973 shall be followed.

10.2 For hardness and tension load tests, the sampling plan with Inspection level I and Acceptable Quality Level (AQL) 2.5 percent given in Tables 1 and 2 of IS : 2500 (Part 1)-1973 shall be followed.

11. Marking — The jaws of parallel clamp shall be marked with, nominal size, type, manufacturer's name, initials and/or recognized trade-mark, and year of manufacture.

11.1 ISI Certification Marking — Details available with the Indian Standards Institution.

EXPLANATORY NOTE

The clamps specified here are generally used for holding the work jobs by machinists in the workshops and tool makers in the tool room sections of the industries.

While preparing this specification, details have been taken from Interim Federal Specification GGG — C — 00406 b — 1963 'Clamps and Hand Screw' issued by the Federal Supply Services, USA.

AMENDMENT NO. 1 MAY 1996
TO
IS 11458 : 1985 SPECIFICATION
FOR PARALLEL CLAMPS

(*Page 1, clause 4, under the heading 'Material'*) — Substitute 'IS 1570 (Part 2/Sec 1) : 1979 Schedules for wrought steels : Part 2 Carbon steels (unalloyed steels), Section 1 Wrought products (other than wire) with specified chemical composition and related properties (*first revision*)' for 'IS : 1570 (Part 2) - 1979 Carbon steels (unalloyed steels) (*first revision*)'.

(*Page 4, clause 10, line 2*) — Substitute 'IS 2500 (Part 1) : 1992 Sampling inspection procedures : Part 1 Attribute sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection (*second revision*)' for 'IS : 2500 (Part 1) - 1973 Sampling inspection tables : Part 1 Inspection by attributes and by count of defects (*first revision*)'.

(*Page 4, clauses 10.1 and 10.2, line 2*) — Substitute 'Tables I and II-A of IS 2500 (Part 1) : 1992' for 'Tables 1 and 2 of IS : 2500 (Part 1) - 1973'.

(PE 06)

Reprography Unit, BIS, New Delhi, India